Ferrari North America

Technical Information

Date: June 2017
Bulletin #:   2389
Campaign #:
Supersedes: 2149
Section: 3

Model Type: 458 Italia/Spider/Speciale/Speciale A, California/California T, FF, F12Berlinetta/TDF, 488 GTB/Spider

Model Year: All

Subject: **Managing DCT gearbox faults**

Please find enclosed the correct protocol for managing the procedures to resolve faults on the **Ferrari California**, **California T**, **458 Italia**, **458 Spider**, **458 Speciale**, **458 Speciale A**, **FF**, **F12berlinetta**, **488 GTB**, **488 Spider and F12tdf** vehicles in relation to the DCT gearbox malfunction (oil leaks, electrical problems, noise) identified.

PRE-DIAGNOSIS (BEFORE OPENING THE ROL)

A) Oil Leakage

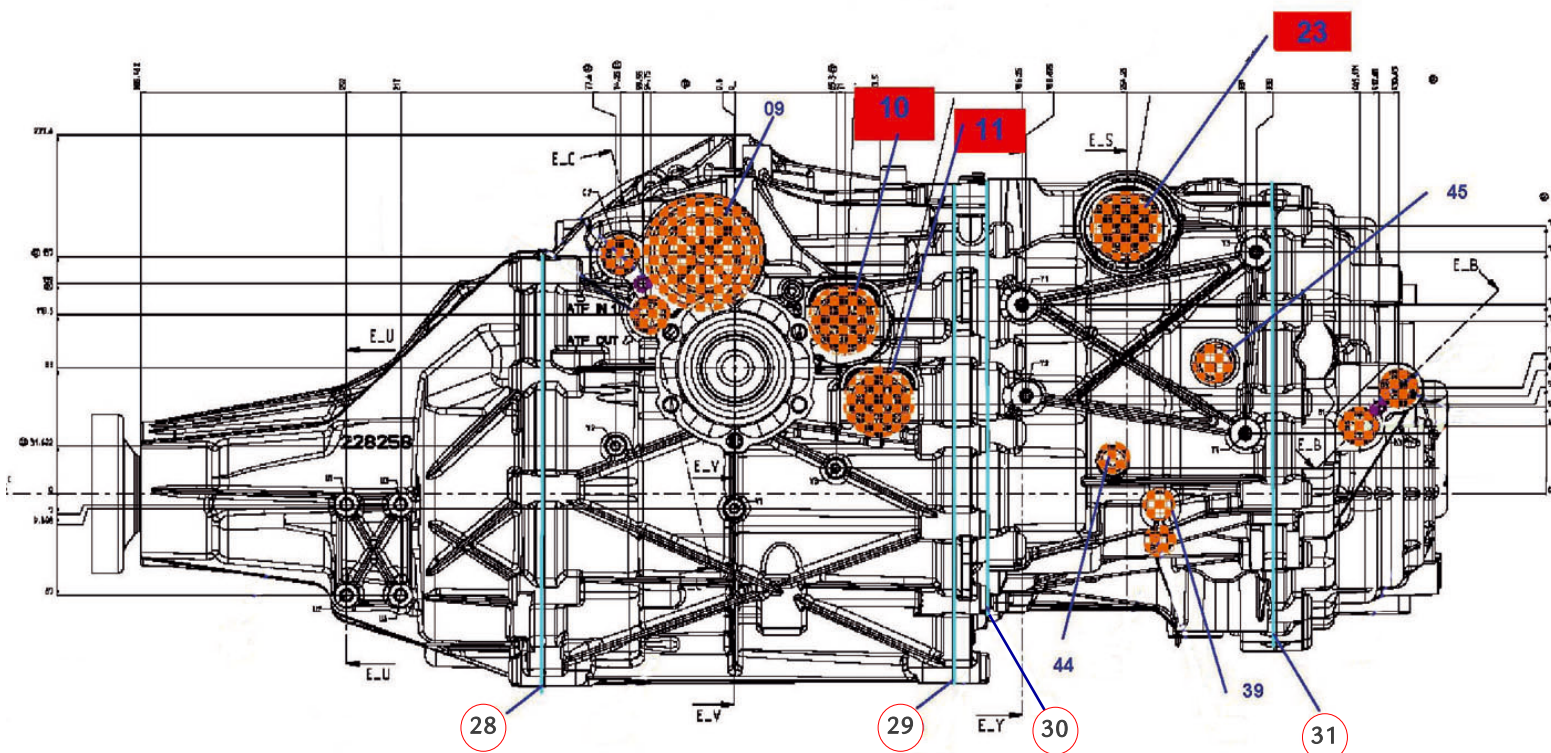In cases of oil leakage from the DCT gearbox, proceed as follows:

➢ Take a **PHOTO** of the leak on the gearbox and a **PHOTO** of the flat undertray, if fouled with oil;

➢ Clean the leak area thoroughly with heptane and lint-free clean cloths;

➢ Apply leak detection powder to the area of the gearbox where the leak was noted;

➢ Test drive the vehicle for 10 Km;

➢ Check for the leak again upon returning to the workshop. If the leak still exists, identify the number and location of the leaks found in the following drawings, then determine the type of leak (LEVEL 1, LEVEL 2 or LEVEL 3) from the following table.

➢ Take new **PHOTOS** of the leak, then attach the photos and compile the specific field in the "DCT Gearbox Pre-Diagnosis Form" on page **18** of this document.
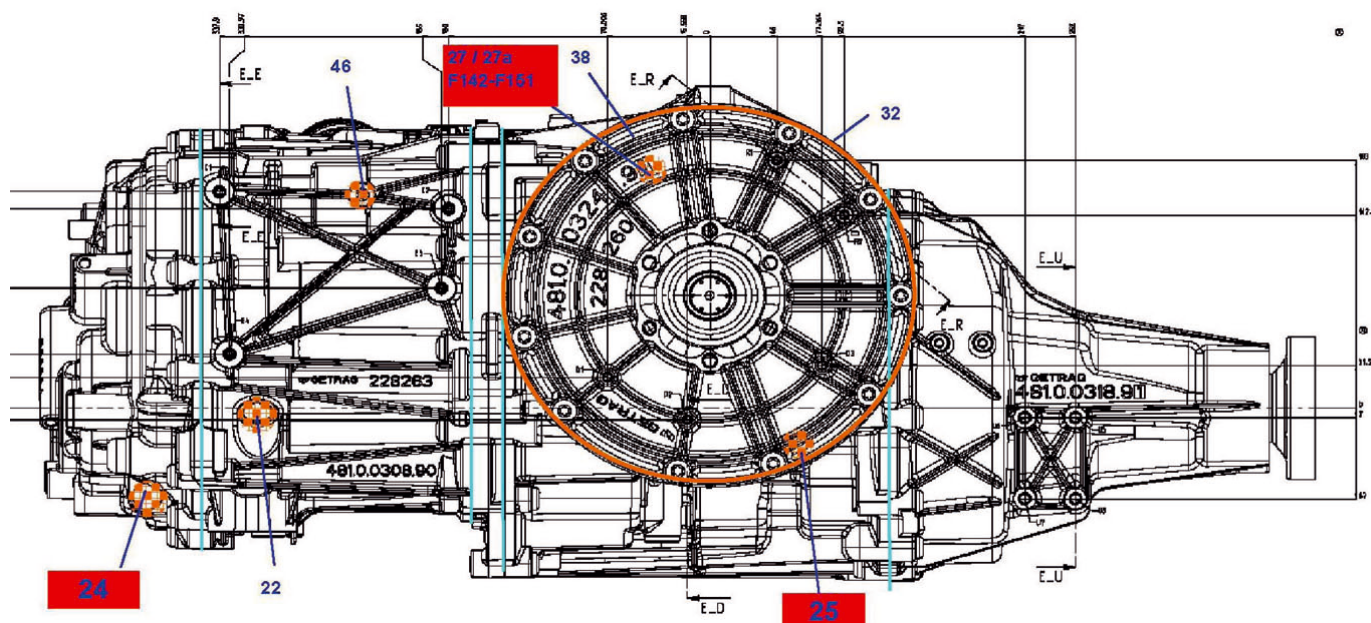
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LEVEL 1 leak	LEVEL 2 leak	LEVEL 3 leak
01, 02, 03, 04, 05, 05a, 06, 09, 10, 15, 16, 20, 21, 22, 23, 24, 25, 27, 27a, 32, 38, 39, 40, 41, 42, 43, 44, 45, 46, 52, 53.	11, 28, 29, 31.	17, 18, 19, 30.

Front View

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Left Hand Lateral View

Right Hand Lateral View

Top View
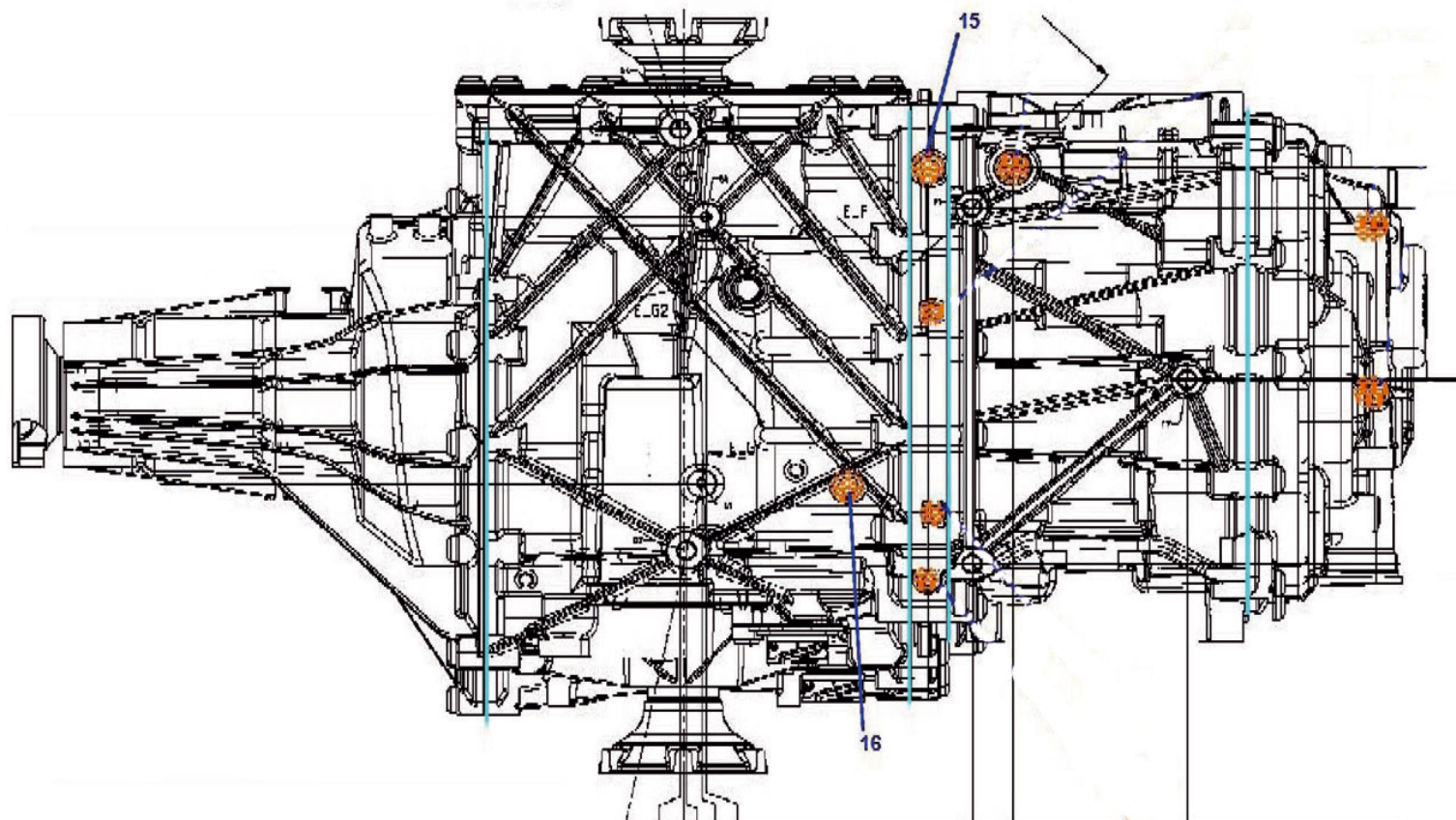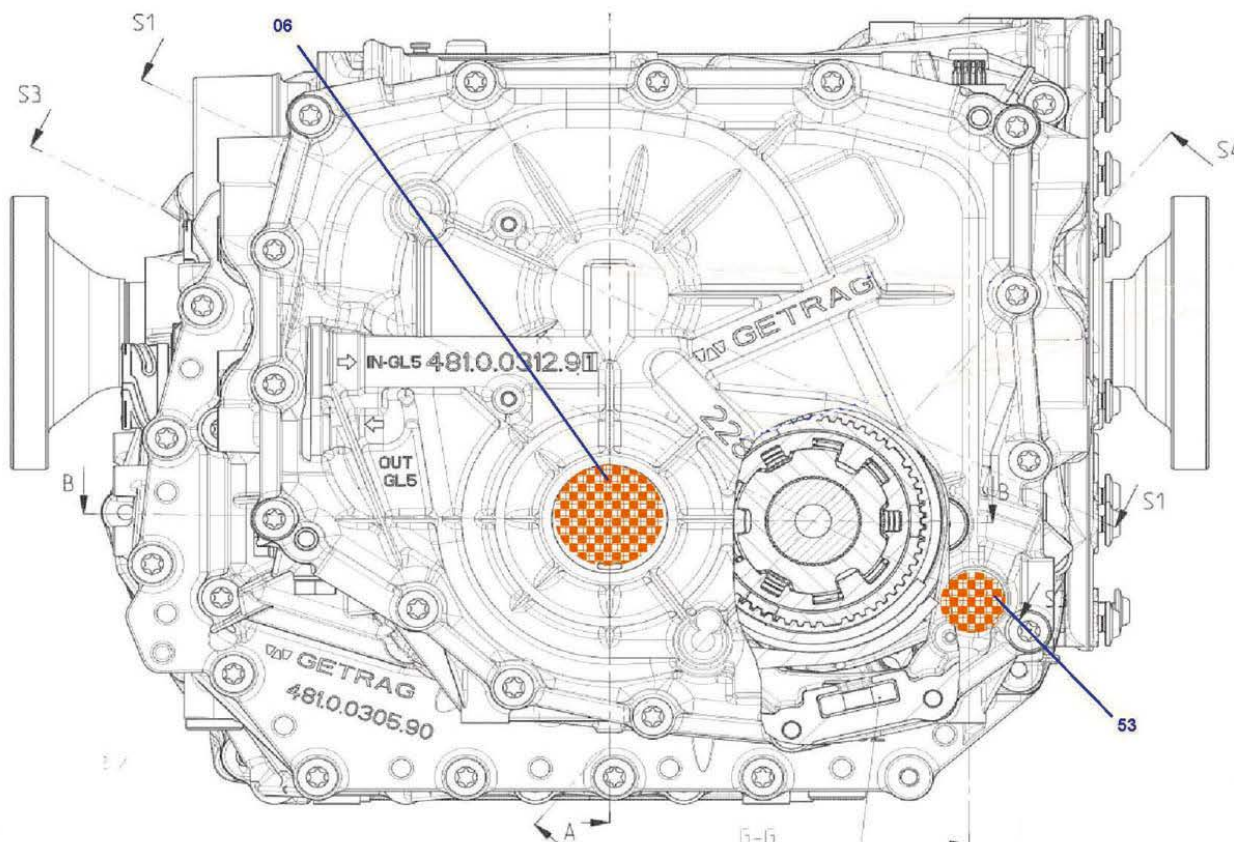
Bottom View
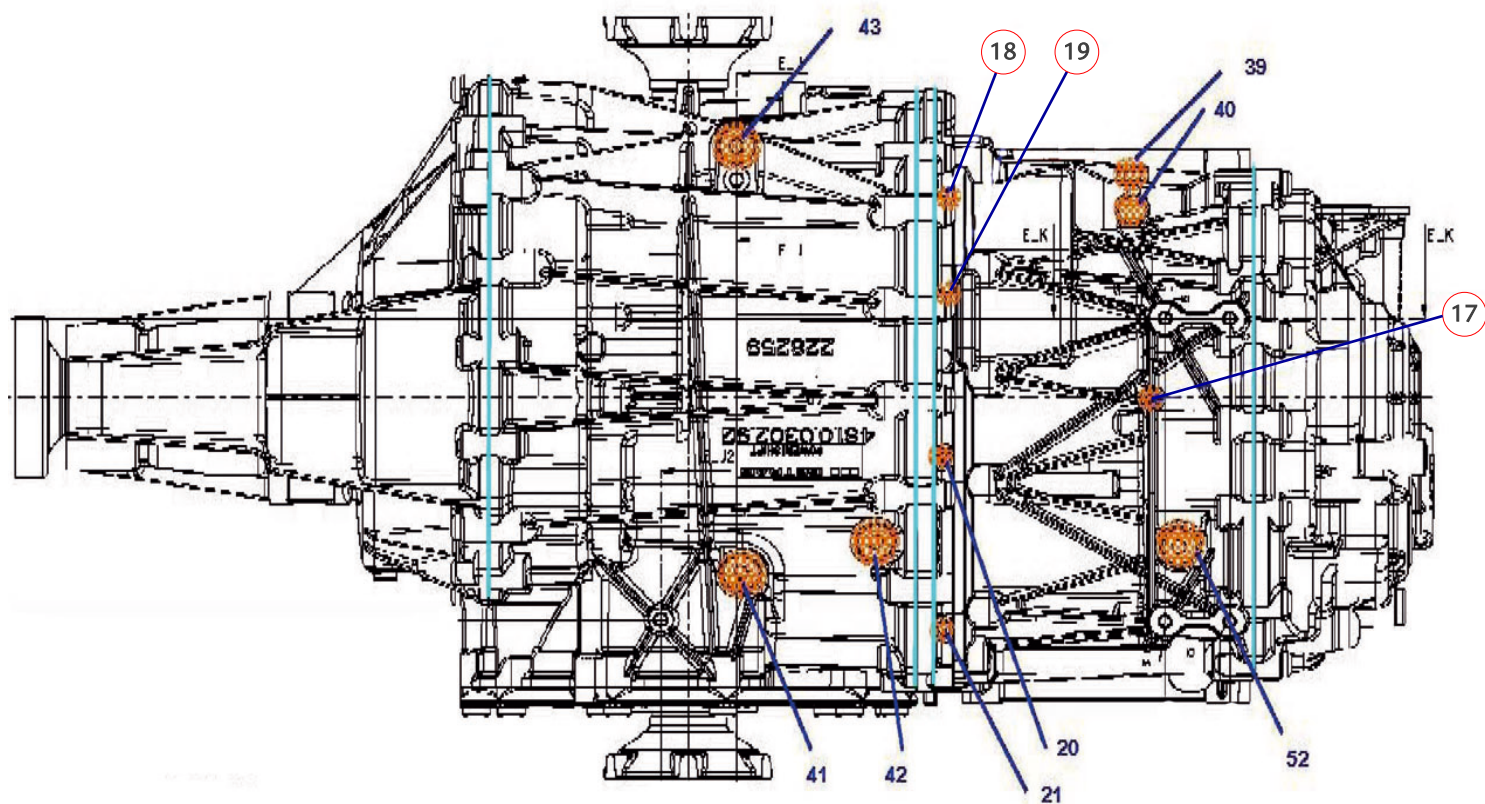
Rear View

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- IMPORTANT -

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According to the level of the leak identified:

➢ **refer to Technical Information 2076 – 2188 - 2325 - 2392 - 2394 for Level 1 leaks.**
➢ **refer to Technical Information 2151 – 2188 - 2326 - 2393 - 2395 for Level 2 leaks.**
➢ **refer to Technical Information 2399 for Level 3 leaks.**

Open a ROL, attaching the "DCT Gearbox Pre-Diagnosis Form" included in this document, and follow the instructions given in the respective Technical Information.

B) NCR ECU errors

In the event of a DCT gearbox malfunction, connect the DEIS tester to the diagnostic socket and read the errors stored in the memory of the NCR ECU.

Follow the instructions given by the DEIS Intelligence to rule out any faults outside the gearbox.

If it is certain that the problem is attributable to the DCT gearbox, locate the error code read in the following list and enter it in the relative space in the "DCT Gearbox Pre-Diagnosis Form" on page **18** of this document.

- IMPORTANT -

The SAP, CCP and CCP pressure sensor faults indicated below are all Level 2 faults. Refer to:

➢ Technical Information 2151 – 2393 – 2395 for the procedures to replace the SAP and CCP.
➢ Technical Information 2344 for the procedure to replace the CCP pressure sensors.
➢ Technical Information 2406 for the procedure to replace the CCP temperature sensor.

Open a ROL, attaching the "DCT Gearbox Pre-Diagnosis Form" included in this document, and follow the instructions given in the respective Technical Informations.

- IMPORTANT -

Only Authorized Trained Technicians that have completed the course on Level 2 procedures for the DCT gearbox are authorized to perform Level 2 procedures.

- IMPORTANT -

The faults Gearbox Speed Sensor faults indicated below are Level 3 faults. Refer to:

➢ Technical Information 2152 – 2188 - 2397 (for Authorized Ferrari Dealers not authorized to perform Level 3 procedures).
➢ Technical Information 2153 – 2188 - 2398 (for Authorized Ferrari Dealers authorized to perform Level 3 procedures).

Open a ROL, attaching the "DCT Gearbox Pre-Diagnosis Form" included in this document, and follow the instructions given in the respective Technical Information.

C) Noise

In cases of verified noise from the gearbox/differential, compile the relative fields in the "DCT Gearbox Pre-Diagnosis Form " from page **18** to **20** in this document.

➢ Technical Information 2396 for the procedure to replace the E-DIFF;

- IMPORTANT -

Open an ROL, attaching the "DCT Gearbox Pre-Diagnosis Form" included in this document.

- IMPORTANT -

Dealers WITHOUT authorization must send gearboxes for repair to the geographically closest Authorized Ferrari Dealer.

Thank you for your co-operation.

DTC read on NCR	Description of DTC	Fault	Component involved
LEVEL 2 DTCs (SAP and CCP)			
P0710	EVEN (2) clutch oil temperature sensor, too low	Electrical fault in EVEN clutch oil temperature sensor.	CCP
P0711	EVEN clutch (2) oil temperature sensor, too high	Electrical fault in EVEN clutch oil temperature sensor.	CCP
P0726	Engine speed, too high	Electric fault in engine speed sensor.	CCP
P0727	Engine speed, too low	Electric fault in engine speed sensor.	CCP
P0728	No engine speed signal	Electric fault in engine speed sensor.	CCP
P0746	ODD clutch (1) electric command signal, too low	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0747	ODD clutch (1) electric command signal, too high	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0748	ODD clutch (1) electric command signal, no signal	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0751	Actuator A activate signal, too low	Electric/mechanical fault in gear selector solenoid valve A.	SAP
P0752	Actuator A activate signal, too high	Electric/mechanical fault in gear selector solenoid valve A.	SAP
P0753	Actuator A activate signal, no signal	Electric/mechanical fault in gear selector solenoid valve A.	SAP
P0756	Actuator B activate signal, too low	Electric/mechanical fault in gear selector solenoid valve B.	SAP
P0757	Actuator B activate signal, too high	Electric/mechanical fault in gear selector solenoid valve B.	SAP
P0758	Actuator B activate signal, no signal	Electric/mechanical fault in gear selector solenoid valve B.	SAP
P0761	Actuator C activate signal, too low	Electric/mechanical fault in gear selector solenoid valve C.	SAP

DTC read on NCR	Description of DTC	Fault	Component involved
P0762	Actuator C activate signal, too high	Electric/mechanical fault in gear selector solenoid valve C.	SAP
P0763	Actuator C activate signal, no signal	Electric/mechanical fault in gear selector solenoid valve C.	SAP
P0766	Actuator D activate signal, too low	Electric/mechanical fault in gear selector solenoid valve D.	SAP
P0767	Actuator D activate signal, too high	Electric/mechanical fault in gear selector solenoid valve D.	SAP
P0768	Actuator D activate signal, no signal	Electric/mechanical fault in gear selector solenoid valve D.	SAP
P0771	ODD/EVEN selector command signal, too low	Electric/mechanical fault in gear selector solenoid valve E.	SAP
P0772	ODD/EVEN selector command signal, too high	Electric/mechanical fault in gear selector solenoid valve E.	SAP
P0773	ODD/EVEN selector command signal, no signal	Electric/mechanical fault in gear selector solenoid valve E.	SAP
P0776	EVEN clutch (2) electric command signal, too low	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0777	EVEN clutch (2) electric command signal, too high	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0778	EVEN clutch (2) electric command signal, no signal	Electric/mechanical fault in ODD gear clutch solenoid valve.	CCP
P0796	ODD clutch (1) lubrication command signal, too low	Electric/mechanical fault in ODD clutch lubrication solenoid valve.	CCP
P0797	ODD clutch (1) lubrication command signal, too high	Electric/mechanical fault in ODD clutch lubrication solenoid valve.	CCP

DTC read on NCR	Description of DTC	Fault	Component involved
P0798	ODD clutch (1) lubrication command signal, no signal	Electric/mechanical fault in ODD clutch lubrication solenoid valve.	CCP
P0841	ODD clutch (1) pressure sensor signal, invalid signal	Electric fault in ODD clutch pressure sensor.	CCP / Pressure sensor 811
P0842	ODD clutch (1) clutch pressure sensor, too low	Electric fault in ODD clutch pressure sensor.	CCP / Pressure sensor 811
P0843	ODD clutch (1) clutch pressure sensor, too high	Electric fault in ODD clutch pressure sensor.	CCP / Pressure sensor 811
P0846	EVEN clutch (2) pressure sensor signal, invalid signal	Electric fault in EVEN clutch pressure sensor.	CCP / Pressure sensor 812
P0847	EVEN clutch (2) clutch pressure sensor, too low	Electric fault in EVEN clutch pressure sensor.	CCP / Pressure sensor 812
P0848	EVEN clutch (2) clutch pressure sensor, too high	Electric fault in EVEN clutch pressure sensor.	CCP / Pressure sensor 812
P084B	EDIFF pressure sensor, no signal	Electric fault in EDIFF pressure sensor.	CCP
P084C	EDIFF pressure sensor, too low	Electric fault in EDIFF pressure sensor.	CCP
P084D	EDIFF pressure sensor, too high	Electric fault in EDIFF pressure sensor.	CCP
P0933	Hydraulic pressure sensor, invalid signal	Electric fault in hydraulic pressure sensor.	CCP / Pressure sensor 880
P0934	Hydraulic pressure sensor, too low	Electric fault in hydraulic pressure sensor.	CCP / Pressure sensor 880
P0935	Hydraulic pressure sensor, too high	Electric fault in hydraulic pressure sensor.	CCP / Pressure sensor 880
P0938	Radiator outlet / gearbox inlet oil temperature sensor, no signal	Electrical fault in radiator outlet / gearbox inlet oil temperature sensor.	CCP / Temperature sensor
P0939	Radiator outlet / gearbox inlet oil temperature sensor, too low	Electrical fault in radiator outlet / gearbox inlet oil temperature sensor.	CCP / Temperature sensor

DTC read on NCR	Description of DTC	Fault	Component involved
P0940	Radiator outlet / gearbox inlet oil temperature sensor, too high	Electrical fault in radiator outlet / gearbox inlet oil temperature sensor.	CCP / Temperature sensor
P0942	Hydraulic pressure command signal, too low	Electric/mechanical fault in system pressure solenoid valve.	CCP
P0943	Hydraulic pressure command signal, too high	Electric/mechanical fault in system pressure solenoid valve.	CCP
P0944	APP_SYSTEM_PRESSURE, no signal	Fault in hydraulic circuit. Pressure loss.	CCP
P0948	OUT_SYSTEM_PRESSURE, no signal	Electrical fault in radiator outlet / gearbox inlet oil temperature sensor.	CCP
P0960	ODD clutch (1) cut-off valve electric command signal, no signal	Electronic/mechanical fault in ODD clutch (1) cut-off solenoid valve.	CCP
P0962	ODD clutch (1) cut-off valve electric command signal, too low	Electronic/mechanical fault in ODD clutch (1) cut-off solenoid valve.	CCP
P0963	ODD clutch (1) cut-off valve electric command signal, too high	Electronic/mechanical fault in ODD clutch (1) cut-off solenoid valve.	CCP
P0964	EVEN clutch (2) cut-off valve electric command signal, no signal	Electronic/mechanical fault in EVEN clutch (2) cut-off solenoid valve.	CCP
P0966	EVEN clutch (2) cut-off valve electric command signal, too low	Electronic/mechanical fault in EVEN clutch (2) cut-off solenoid valve.	CCP
P0967	EVEN clutch (2) cut-off valve electric command signal, too high	Electronic/mechanical fault in EVEN clutch (2) cut-off solenoid valve.	CCP
P0972	IN_ROD_POS_1, no signal	Electrical fault in actuator 1 engage position sensor.	SAP

DTC read on NCR	Description of DTC	Fault	Component involved
P0973	Actuator 1 engage position sensor, too low	Electrical fault in actuator 1 engage position sensor.	SAP
P0974	Actuator 1 engage position sensor, too high	Electrical fault in actuator 1 engage position sensor.	SAP
P0975	IN_ROD_POS_2, no signal	Electrical fault in actuator 2 engage position sensor.	SAP
P0976	Actuator 2 engage position sensor, too low	Electrical fault in actuator 2 engage position sensor.	SAP
P0977	Actuator 2 engage position sensor, too high	Electrical fault in actuator 2 engage position sensor.	SAP
P0978	Actuator 4 engage position sensor, no signal	Electrical fault in actuator 4 engage position sensor.	SAP
P0979	Actuator 4 engage position sensor, too low	Electrical fault in actuator 4 engage position sensor.	SAP
P0980	Actuator 4 engage position sensor, too high	Electrical fault in actuator 4 engage position sensor.	SAP
P0981	IN_ROD_POS_3, no signal	Electrical fault in selector actuator 3 position sensor.	SAP.
P0982	Actuator 3 engage position sensor, too low	Electrical fault in selector actuator 3 position sensor.	SAP.
P0983	Actuator 3 engage position sensor, too high	Electrical fault in selector actuator 3 position sensor.	SAP.
P0985	IN_SELECTOR_POS, too low	Electrical fault in selector engage position sensor.	SAP.
P0986	IN_SELECTOR_POS, too high	Electrical fault in selector engage position sensor.	SAP.
P1790	Parklock position - redundant sensor, too high	Electrical fault in parklock position sensor.	SAP.
P1791	Parklock position - redundant sensor, too low	Electrical fault in parklock position sensor.	SAP

DTC read on NCR	Description of DTC	Fault	Component involved
P1795	Parklock position sensor, too high	Electrical fault in parklock position sensor.	SAP.
P1796	Parklock position sensor, too low	Electrical fault in parklock position sensor.	SAP.
P1800	Parklock hydraulic command signal, too low	Electric/mechanical fault in parklock solenoid valve.	SAP.
P1801	Parklock hydraulic command signal, too high	Electric/mechanical fault in parklock solenoid valve.	SAP.
P1802	Parklock hydraulic command signal, no signal	Electric/mechanical fault in parklock solenoid valve.	SAP.
P1840	OUT_PUMPSELECT, no signal	Electric/mechanical fault in high pressure / low pressure solenoid valve.	CCP.
P1841	OUT_PUMPSELECT, too low	Electric/mechanical fault in high pressure / low pressure solenoid valve.	CCP.
P1842	OUT_PUMPSELECT, too high	Electric/mechanical fault in high pressure / low pressure solenoid valve.	CCP.
P1843	OUT_LOW_PRESSURE_BYPASS, no signal	Electric/mechanical fault in low pressure bypass solenoid valve.	CCP.
P1844	OUT_LOW_PRESSURE_BYPASS, too low	Electric/mechanical fault in low pressure bypass solenoid valve.	CCP.
P1845	OUT_LOW_PRESSURE_BYPASS, too high	Electric/mechanical fault in low pressure bypass solenoid valve.	CCP.
P1902	APP_CLUTCH_PRESSURE_ODD, too high (odd shaft pressure command signal too high)	ODD clutch (1) pressure sensor or ODD clutch solenoid valve malfunctioning.	CCP / Pressure sensor 811

DTC read on NCR	Description of DTC	Fault	Component involved
P1903	APP_CLUTCH_PRESSURE_ODD, too low (odd shaft pressure command signal too low)	ODD clutch (1) pressure sensor or ODD clutch solenoid valve malfunctioning.	CCP / Pressure sensor 811
P1904	APP_CLUTCH_PRESSURE_ODD, invalid signal (odd shaft pressure command signal not valid)	ODD clutch (1) pressure sensor or ODD clutch solenoid valve malfunctioning.	CCP / Pressure sensor 811
P1905	APP_CLUTCH_PRESSURE_EVEN, too high (even shaft pressure command signal too high)	EVEN clutch (2) pressure sensor or EVEN clutch solenoid valve malfunctioning.	CCP / Pressure sensor 812
P1906	APP_CLUTCH_PRESSURE_EVEN, too low (even shaft pressure command signal too low)	EVEN clutch (2) pressure sensor or EVEN clutch solenoid valve malfunctioning.	CCP / Pressure sensor 812
P1907	APP_CLUTCH_PRESSURE_EVEN, invalid signal (even shaft pressure command signal not valid)	EVEN clutch (2) pressure sensor or EVEN clutch solenoid valve malfunctioning.	CCP / Pressure sensor 812
P1908	APP_ROD_MECH_ODD, too high (odd gearbox shaft mechanical variation too frequent)	Mechanical fault in RODs.	SAP.
P1909	APP_ROD_MECH_ODD, no signal (odd gearbox shaft mechanical variation too long)	Mechanical fault in RODs.	SAP.
P190B	APP_ROD_MECH_EVEN, too high (even gearbox shaft mechanical variation too frequent)	Mechanical fault in RODs.	SAP.
P190C	APP_ROD_MECH_EVEN, no signal (even gearbox shaft mechanical variation too long)	Mechanical fault in RODs.	SAP.

DTC read on NCR	Description of DTC	Fault	Component involved
P190E	APP_CLUTCH_SPEED_EVEN_CONSISTENCY, no signal (even clutch overspeed fault)	Clutch fault.	CCP.
P190F	APP_CLUTCH_SPEED_EVEN_CONSISTENCY, invalid signal (even clutch speed consistency fault)	Clutch fault.	CCP.
P1910	APP_CLUTCH_SPEED_ODD_CONSISTENCY, no signal (odd clutch overspeed fault)	Clutch fault.	CCP.
P1911	APP_CLUTCH_SPEED_ODD_CONSISTENCY, invalid signal (odd clutch speed consistency fault)	Clutch fault.	CCP.
P1912	APP_ROD_POS_ODD, too high (position fault, odd shaft rod 1/3)	Mechanical fault in RODs.	SAP.
P1913	APP_ROD_POS_ODD, no signal (position fault, odd shaft rods 1/3 and 5/7)	Mechanical fault in RODs.	SAP.
P1914	APP_ROD_POS_EVEN, too high (position fault, even shaft rod 4/R)	Mechanical fault in RODs.	SAP.
P1915	APP_ROD_POS_EVEN, no signal (position fault, odd shaft rods 2/6 and 4/R)	Mechanical fault in RODs.	SAP.
P191B	APP_CLUTCH_SPEED_ODD_CONSISTENCY, too high	Fault in odd clutch.	CCP.
P191C	APP_CLUTCH_SPEED_EVEN_CONSISTENCY, too high	Fault in odd clutch.	CCP.
P1922	ODD clutch (1) temperature, no signal (odd shaft temperature too high)	Electric fault in ODD clutch (1) temperature sensor.	CCP.
P1923	ODD clutch (1) temperature, invalid signal (odd shaft radiator temperature too high)	Electric fault in ODD clutch (1) temperature sensor.	CCP.
P1924	EVEN clutch (2) temperature, no signal (even shaft temperature too high)	Electric fault in EVEN clutch (2) temperature sensor.	CCP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1925	EVEN clutch (2) temperature, invalid signal (even shaft radiator temperature too high)	Electric fault in EVEN clutch (2) temperature sensor.	CCP.
P1926	APP_THERMAL_PROTECTION_ODD, no signal	Fault in odd clutch.	CCP.
P1927	APP_THERMAL_PROTECTION_ODD, invalid signal (excessively rapid increase in thermal protection of odd clutch)	Fault in odd clutch.	CCP.
P1928	APP_THERMAL_PROTECTION_EVEN, no signal	Fault in even clutch.	CCP.
P1929	APP_THERMAL_PROTECTION_EVEN, invalid signal (excessively rapid increase in thermal protection of even clutch)	Fault in even clutch.	CCP.
P1928	APP_THERMAL_PROTECTION_EVEN, no signal	Fault in even clutch.	CCP.
P1929	APP_THERMAL_PROTECTION_EVEN, invalid signal (excessively rapid increase in thermal protection of even clutch)	Fault in even clutch.	CCP.
P192A	APP_SELECTOR_POS, too high (gearbox section selector, too high)	Fault in SAP internal selectors.	SAP.
P192B	APP_SELECTOR_POS, too low (gearbox section selector, too low)	Fault in SAP internal selectors.	SAP.
P192C	APP_SYSTEM_PRESSURE, too high (system pressure command signal too high)	Fault in system pressure solenoid valve.	CCP.
P192D	APP_SYSTEM_PRESSURE, too low (system pressure command signal too low)	Fault in system pressure solenoid valve.	CCP.
P192E	APP_SYSTEM_PRESSURE, invalid signal (variation in system pressure control signal)	Fault in system pressure solenoid valve.	CCP.
P192F	APP_EDIFF_PRESSURE_SENSOR_DRIFT, invalid signal (variation in ediff pressure sensor signal)	Electric fault in EDIFF pressure sensor.	CCP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1930	Speed sensor power feed, too low (feed voltage for sensors D - Low Circuit)	Wiring harness powering engine speed sensor damaged or disconnected.	CCP.
P1931	Speed sensor power feed, too high (feed voltage for sensors D - High Circuit)	Wiring harness powering engine speed sensor damaged or disconnected.	CCP.
P1932	APP_CLUTCH_RSP_ODD, invalid signal (fault in odd clutch redundant cut-off valve)	Fault in odd clutch.	CCP.
P1933	APP_CLUTCH_RSP_EVEN, invalid signal (fault in even clutch redundant cut-off valve)	Fault in even clutch.	CCP.
P1939	APP_ENGINE_SPEED_CONSISTENCY, too low (engine / gearbox speed consistency fault)	Electric/mechanical fault in engine speed sensor.	CCP.
P1950	Ground loop 1 (hydraulic circuit - clutch actuators), too high (earth level for feed line A too low)	Wiring harness connecting clutch actuators to ground is damaged or disconnected.	CCP.
P1951	Ground loop 1 (hydraulic circuit - clutch actuators), too high (earth level for feed line A too high)	Wiring harness connecting clutch actuators to ground is damaged or disconnected.	CCP.
P1952	L2_SG13_ILLEGAL_DISENGAGEMENT_OF_PARKLOCK, invalid signal (illegal parklock disengagement)	Electric/mechanical fault in Park lock ON/OFF solenoid valve.	SAP.
P1953	L2_SG14_PARKLOCK_IS_NOT_ENGAGING, invalid signal (parklock not engaging)	Electric/mechanical fault in Park lock ON/OFF solenoid valve.	SAP.
P1954	L2_SG16_ILLEGAL_ENGAGEMENT_OF_PARKLOCK invalid signal (illegal parklock engagement)	Electric/mechanical fault in Park lock ON/OFF solenoid valve.	SAP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1956	APP_ROD_POS_ODD, too low (position fault, odd shaft rod 5/7)	Mechanical fault in RODs.	SAP.
P1957	APP_ROD_POS_EVEN, too low (position fault, even shaft rod 2/6)	Mechanical fault in RODs.	SAP.
P1958	APP_SOLENOID_PAIR_AB, no signal (synchro solenoid valve A(311) stuck OFF)	Fault in gear selection synchroniser.	SAP.
P1959	APP_SOLENOID_PAIR_AB, invalid signal (synchro solenoid valve B(312) stuck OFF)	Fault in gear selection synchroniser.	SAP.
P195A	APP_SOLENOID_PAIR_CD, no signal (synchro solenoid valve C(313) stuck OFF)	Fault in gear selection synchroniser.	SAP.
P195B	APP_SOLENOID_PAIR_CD, invalid signal (synchro solenoid valve D(314) stuck OFF)	Fault in gear selection synchroniser.	SAP.
P195C	APP_SOLENOID_PAIR_AB, too high (synchro solenoid valve A(311) stuck ON)	Fault in gear selection synchroniser.	SAP.
P195D	APP_SOLENOID_PAIR_AB, too low (synchro solenoid valve B(312) stuck ON)	Fault in gear selection synchroniser.	SAP.
P195E	APP_SOLENOID_PAIR_CD, too high (synchro solenoid valve C(313) stuck ON)	Fault in gear selection synchroniser.	SAP.
P195F	APP_SOLENOID_PAIR_CD, too low (synchro solenoid valve D(314) stuck ON)	Fault in gear selection synchroniser.	SAP.
P1960	Ground loop 2 (hydraulic parklock - gear engagement actuators), too high (earth level of power line B too high)	Wiring harness connecting gear selector actuators to ground is damaged or disconnected.	SAP.
P1961	Ground loop 2 (hydraulic parklock - gear engagement actuators), too low (earth level of power line B too low)	Wiring harness connecting gear selector actuators to ground is damaged or disconnected.	SAP.
P1962	Ground loop 3 (hydraulic parklock - gear engagement actuators), too high (earth level of power line B too low)	Wiring harness connecting gear selector actuators to ground is damaged or disconnected.	SAP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1963	Ground loop 3 (hydraulic parklock - gear engagement actuators), too low (earth level of power line B too low)	Wiring harness connecting gear selector actuators to ground is damaged or disconnected.	SAP.
P1964	sensor_REDUNDANT actuator 1 engage position sensor, too low (redundant engage position sensor A)	Electrical fault in gear engage actuator position sensors.	SAP.
P1965	sensor_REDUNDANT actuator 1 engage position sensor, too high (redundant engage position sensor A)	Electrical fault in gear engage actuator position sensors.	SAP.
P1966	sensor_REDUNDANT actuator 2 engage position sensor, too low (redundant engage position sensor B)	Electrical fault in gear engage actuator position sensors.	SAP.
P1967	sensor_REDUNDANT actuator 2 engage position sensor, too high (redundant engage position sensor B)	Electrical fault in gear engage actuator position sensors.	SAP.
P1968	sensor_REDUNDANT actuator 3 engage position sensor, too low (redundant engage position sensor C)	Electrical fault in gear engage actuator position sensors.	SAP.
P1969	sensor_REDUNDANT actuator 3 engage position sensor, too high (redundant engage position sensor C)	Electrical fault in gear engage actuator position sensors.	SAP.
P196A	sensor_REDUNDANT actuator 4 engage position sensor, too low (redundant engage position sensor D)	Electrical fault in gear engage actuator position sensors.	SAP.
P196B	sensor_REDUNDANT actuator 4 engage position sensor, too high (redundant engage position sensor D)	Electrical fault in gear engage actuator position sensors.	SAP.
P196C	APP_PARKLOCK, invalid signal (parklock fault level high)	Electrical fault in parklock position sensor.	SAP.
P1974	APP_SYNCHRO_1ST, too high (command fault, 1st gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P1975	APP_SYNCHRO_1ST, too low (command fault, 1st gear does not leave)	Fault in gear selection synchroniser.	SAP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1976	APP_SYNCHRO_1ST, no signal (command fault, 1st gear stuck)	Fault in gear selection synchroniser.	SAP.
P1977	APP_SYNCHRO_2ND, too high (command fault, 2nd gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P1978	APP_SYNCHRO_2ND, too low (command fault, 2nd gear does not leave)	Fault in gear selection synchroniser.	SAP.
P1979	APP_SYNCHRO_2ND, no signal (command fault, 2nd gear stuck)	Fault in gear selection synchroniser.	SAP.
P197A	APP_SYNCHRO_3RD, too high (command fault, 3rd gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P197B	APP_SYNCHRO_3RD, too low (command fault, 3rd gear does not leave)	Fault in gear selection synchroniser.	SAP.
P197C	APP_SYNCHRO_3RD, no signal (command fault, 3rd gear stuck)	Fault in gear selection synchroniser.	SAP.
P197D	APP_SYNCHRO_4TH, too high (command fault, 4th gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P197E	APP_SYNCHRO_4TH, too low (command fault, 4th gear does not leave)	Fault in gear selection synchroniser.	SAP.
P197F	APP_SYNCHRO_4TH, no signal (command fault, 4th gear stuck)	Fault in gear selection synchroniser.	SAP.
P1980	APP_SYNCHRO_5TH, too high (command fault, 5th gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P1981	APP_SYNCHRO_5TH, too low (command fault, 5th gear does not leave)	Fault in gear selection synchroniser.	SAP.
P1982	APP_SYNCHRO_5TH, no signal (command fault, 5th gear stuck)	Fault in gear selection synchroniser.	SAP.
P1983	APP_SYNCHRO_6TH, too high (command fault, 6th gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P1984	APP_SYNCHRO_6TH, too low (command fault, 6th gear does not leave)	Fault in gear selection synchroniser.	SAP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1985	APP_SYNCHRO_6TH, no signal (command fault, 6th gear stuck)	Fault in gear selection synchroniser.	SAP.
P1986	APP_SYNCHRO_7TH, too high (command fault, 7th gear does not arrive)	Fault in gear selection synchroniser.	SAP.
P1987	APP_SYNCHRO_7TH, too low (command fault, 7th gear does not leave)	Fault in gear selection synchroniser.	SAP.
P1988	APP_SYNCHRO_7TH, no signal (command fault, 7th gear stuck)	Fault in gear selection synchroniser.	SAP.
P1989	APP_SYNCHRO_REV, too high (command fault, reverse does not arrive)	Fault in gear selection synchroniser.	SAP.
P198A	APP_SYNCHRO_REV, too low (command fault, reverse does not leave)	Fault in gear selection synchroniser.	SAP.
P198B	APP_SYNCHRO_REV, no signal (command fault, reverse stuck)	Fault in gear selection synchroniser.	SAP.
P198C	APP_CPC_FAULT_ODD, invalid signal (suspended ODD clutch pressure command fault)	Fault on EVEN and/or ODD clutch.	CCP.
P198D	APP_CPC_FAULT_EVEN, invalid signal (suspended EVEN clutch pressure command fault)	Fault on EVEN and/or ODD clutch.	CCP.
P1991	APP_COMPLEMENT_ ROD_MOVE, too high (odd clutch additional rod movement fault)	Mechanical fault in RODs.	SAP.
P1992	APP_COMPLEMENT_ ROD_MOVE, too low (even clutch additional rod movement fault)	Mechanical fault in RODs.	SAP.
P1996	APP_EDIFF_THERMAL_ PROTECTION, too high	Electric/mechanical fault in Ediff pressure solenoid valve.	CCP.
P1997	APP_EDIFF_PRESSURE, too high	Electric/mechanical fault in Ediff pressure solenoid valve.	CCP.

DTC read on NCR	Description of DTC	Fault	Component involved
P1998	APP_EDIFF_PRESSURE, too low	Electric/mechanical fault in Ediff pressure solenoid valve.	CCP.
P1999	APP_EDIFF_PRESSURE, no signal (ediff valve stuck)	Electric/mechanical fault in Ediff pressure solenoid valve.	CCP.
P2714	EVEN clutch (2) lubrication command signal, too low	Electric/mechanical fault in EVEN clutch lubrication solenoid valve.	CCP.
P2715	EVEN clutch (2) lubrication command signal, too high	Electric/mechanical fault in EVEN clutch lubrication solenoid valve.	CCP.
P2716	EVEN clutch (2) lubrication command signal, no signal	Electric/mechanical fault in EVEN clutch lubrication solenoid valve.	CCP.
P2723	EDIFF pressure command signal, too low	Electrical fault in Ediff pressure solenoid valve.	CCP.
P2724	EDIFF pressure command signal, too high	Electrical fault in Ediff pressure solenoid valve.	CCP.
P2725	EDIFF pressure command signal, no signal	Electrical fault in Ediff pressure solenoid valve.	CCP.
P2736	Electric EDIFF pressure cut-off command signal, no signal	Electrical fault in Ediff pressure solenoid valve.	CCP.
P2738	Electric EDIFF pressure cut-off command signal, too low	Electrical fault in Ediff pressure solenoid valve.	CCP.

DTC read on NCR	Description of DTC	Fault	Component involved
P2739	Electric EDIFF pressure cut-off command signal, too high	Electrical fault in Ediff pressure solenoid valve.	CCP.
P2740	ODD (1) clutch oil temperature sensor, too low	Electrical fault in ODD clutch oil temperature sensor.	CCP.
P2741	ODD (1) clutch oil temperature sensor, too high	Electrical fault in ODD clutch oil temperature sensor.	CCP.
P2742	ODD (1) clutch oil temperature sensor, no signal	Electrical fault in ODD clutch oil temperature sensor.	CCP.

LEVEL 3 DTCs (Gearbox Speed Sensor)			
DTC read on NCR	**Description of DTC**	**Fault**	**Component involved**
P0501	Output speed too high	Electrical fault in output speed sensor.	Gearbox Speed Sensor
P0502	Output speed too low	Electrical fault in output speed sensor.	Gearbox Speed Sensor
P0503	Output speed no signal	Electrical fault in output speed sensor.	Gearbox Speed Sensor
P0791	Even (2) shaft speed too high	Electrical fault in even gear shaft speed sensor	Gearbox Speed Sensor
P0792	Even (2) shaft speed invalid signal	Electrical fault in even gear shaft speed sensor	Gearbox Speed Sensor
P0793	Even (2) shaft speed too low	Electrical fault in even gear shaft speed sensor	Gearbox Speed Sensor
P0794	Even (2) shaft speed no signal	Electrical fault in even gear shaft speed sensor	Gearbox Speed Sensor
P2745	Odd (1) shaft speed too high	Electrical fault in odd gear shaft speed sensor	Gearbox Speed Sensor
P2746	Odd (1) shaft speed invalid signal	Electrical fault in odd gear shaft speed sensor	Gearbox Speed Sensor
P2747	Odd (1) shaft speed too low	Electrical fault in odd gear shaft speed sensor	Gearbox Speed Sensor

DTC read on NCR	**Description of DTC**	**Fault**	**Component involved**
P2748	Odd (1) shaft speed no signal	Electrical fault in odd gear shaft speed sensor	Gearbox Speed Sensor

DCT Gearbox Pre-Diagnosis Form

Model		Updated on
458 ITALIA 458 SPIDER 458 SPECIALE 458 SPECIALE A Ferrari California T Ferrari California F12 berlinetta FF 488 GTB 488 SPIDER F12 tdf		**June 2017**

VEHICLE FILE	
Date:	Chassis number:
Model:	Dealer:
Market:	Vehicle Km/mi:
Gearbox No.:	ROL No. (if available):
Warranty start date:	Warranty end date:
Vehicle usage	Track ☐ Rental ☐

Prior procedures on DCT gearbox (date and type of procedure):

DIAGNOSTIC FILE

Provide description of oil leakage found (attach photos), specifying number of leaks, in reference to the drawings from page 3 to 5 of this document:

List any DTC errors in NCR (in reference to the list from page 8 to 16 of this document):

In the event of NOISE from gearbox/differential, specify:

Conditions in which noise occurs:

Vehicle speed:

Gear selected:	N	1st	2nd	3rd	4th	5th	6th	7th	R
	☐	☐	☐	☐	☐	☐	☐	☐	☐

During gear shift?   YES ☐   NO ☐

If noise occurs during gear shifting, specify: Upshifts ☐   Downshifts ☐

Automatic mode ☐   Manual mode ☐   Performance mode ☐

DCT Gearbox Pre-Diagnosis Form

Model	Updated on
458 ITALIA 458 SPIDER 458 SPECIALE 458 SPECIALE A California T California F12 berlinetta FF 488 GTB 488 SPIDER F12 tdf	**June 2017**

If noise occurs with gear engaged, specify when:	Under acceleration ☐	When lifting off throttle ☐	Constant throttle (cruise) ☐
Noise is heard when:	Driving straight ☐	Turning right ☐	Turning left ☐
	Negotiating traffic circle ☐	Negotiating tight bend ☐	Negotiating wide bend ☐
Describe the type of noise heard:	Whistle ☐	Rumble ☐	Gear noise ☐
	Bevel gear set ☐	Vibration ☐	Clunking ☐

Check the levels of the clutch hydraulic oil system (ATF) and the gearbox gear oil system (GL)

	Too high	Too low	OK
Oil level (ATF)	☐	☐	☐
Oil level (GL)	☐	☐	☐

Is metal debris found on plug?

Litres of oil removed   Litres of GL oil: ....   Litres of ATF oil: ....

	YES	NO
Is oil contaminated?	☐	☐

JOB FILE

Job performed:

Kit Part Nos. ordered:

DCT Gearbox Pre-Diagnosis Form

Model	Updated on
458 ITALIA 458 SPIDER 458 SPECIALE 458 SPECIALE A California T California F12 berlinetta FF 488 GTB 488 SPIDER F12 tdf	**June 2017**

Job performed on:

<u>**CCP**</u>

Identification No. of old CCP:

Identification No. of new CCP:

<u>**SAP**</u>

Identification No. of old SAP:

Identification No. of new SAP:

Any faults noted during repair procedure:

Task performed by (Dealer):

_____

_____

Technical Manager:

First name _____ Surname _____
(Print)   (Print)

Company stamp

_____
Full signature